Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A wireless system for determining the location of a ~~low frequency signal emitter which comprises~~ moveable object positioned in a structure having structural features characterized by a feature size, said system comprising:

a signal emitter coupled to said object, said emitter for broadcasting a signal having a wavelength, λ, longer than said feature size;

at least three mutually dispersed base station sites for receiving said ~~low frequency~~ signal from said signal emitter at each base station site;

at least one phase sensing circuit for determining phase information for each received signal; and

a central processing site connected in communication with each said base station site, said central processing site having a processor for using said phase information to determine the location of said signal emitter relative to each said base station site.

2. (Original) A system as recited in claim 1 wherein a said phase sensing circuit is located at each said base station site, and wherein each said base station site further comprises a reference signal synchronized with said signal emitter and in communication with said phase sensing circuit, and wherein said phase information is an actual phase delay.

3. (Original) A system as recited in claim 1 wherein said at least one phase sensing circuit is a phase sensing circuit located at said central processing site, and wherein said central processing site further comprises a reference signal synchronized with said signal emitter and in communication with said phase sensing circuit, and wherein each said base station site has a transmitter for relaying said received signal to said central processing site, and wherein said phase information is an actual phase delay.

4. (Original) A system as recited in claim 1 wherein said at least one phase sensing circuit is a phase sensing circuit located at each said base station site, and wherein each said base station site further comprises a reference signal for synchronizing said base stations, and wherein said phase information is a phase measurement and a measurement time.

5. (Original) A system as recited in claim 1 wherein said processor uses said phase information to calculate at least one relative phase delay to determine the location of said signal emitter relative to each said base station site.

6. (Original) A system as recited in claim 1 wherein said at least one phase sensing circuit is a phase sensing circuit located at said central processing site, and wherein each said base station site has a transmitter for relaying said received signal to said central processing site, and wherein said phase information is a relative phase delay.

7. (Original) A system as recited in claim 1 wherein said three mutually dispersed base station sites lie substantially in a common plane, and further comprising a fourth base station site, said fourth base station site lying substantially outside of said common plane.

8. (Original) A system as recited in claim 1 wherein each said base station site further comprises:

a means for self-surveying; and

a means for communicating the position of each base station to said central processing site.

9. (Original) A system as recited in claim 8 wherein said means for self-surveying is a global positioning system.

10. (Original) A system as recited in claim 1 wherein said communication between said base station sites and said central processing site is wireless.

11. (Currently Amended) A system as recited in claim 1 wherein said signal emitter is a first signal emitter and said ~~low frequency~~ signal is a first ~~low frequency~~ signal and further comprising a second signal emitter for emitting a second ~~low frequency~~ signal, and wherein said first signal emitter has a means for modulating a first emitter identification code onto said first ~~low frequency~~ emitter signal and said second signal emitter has a means for modulating a second emitter identification code onto said second ~~low frequency~~ emitter signal, and wherein each said base station site has a filter to separate said first ~~low frequency~~ emitter signal from said second ~~low frequency~~ emitter signal.

12. (Currently Amended) A system as recited in claim 1 wherein said signal emitter is a first signal emitter and said ~~low frequency~~ signal is a first ~~low frequency~~ signal and further comprising a second signal emitter for emitting a second ~~low frequency~~ signal, and wherein said first ~~low frequency~~ emitter signal and said second ~~low frequency~~ emitter signal have different frequencies, and wherein each said base station site has a filter to separate said first ~~low frequency~~ emitter signal from said second ~~low frequency~~ emitter signal.

13. (Currently Amended) A system as recited in claim 1 wherein said signal emitter is a first signal emitter and said ~~low frequency~~ signal is a first ~~low frequency~~ signal and further comprising a second signal emitter for emitting a second ~~low frequency~~ signal, and wherein each said base station sites has a time division multiple access filter to allow a portion of said first ~~low frequency~~ emitter signal and a portion of said second ~~low frequency~~ emitter signal to be received at each said base station site.

14. (Cancelled)

15. (Currently Amended) A system as recited in claim 1 wherein said ~~low frequency~~ signal [[is]] has a frequency of approximately 27 Mhz.

16. (Cancelled)

17. (Currently Amended) A system as recited in claim 1 wherein said ~~low frequency~~ signal is a first ~~low frequency~~ signal having vertical polarization and wherein said signal emitter further broadcasts a second ~~low frequency~~ signal having horizontal polarization, and wherein each said base station site has a filter to separate said first ~~low frequency~~ emitter signal from said second ~~low frequency~~ emitter signal.

18. (Cancelled)

19. (Currently Amended) A method for locating the position of a ~~low frequency signal emitter~~ moveable object situated inside a structure having structural features characterized by a feature size, which comprises the steps of:

coupling a signal emitter to said object, said emitter for broadcasting a signal having a wavelength, λ, longer than said feature size;

receiving ~~a low frequency~~ said signal from said signal emitter by at least three mutually dispersed base station sites, each said base station site being located outside said structure;

determining at least three relative phase delays, each relative phase delay representing a unique combination of two said base station sites; and

comparing said at least three relative phase delays to obtain a set of possible signal emitter locations.

20. (Currently Amended) A method as recited in claim 19 ~~wherein said signal has a wavelength, and~~ wherein no two base station sites are spaced closer than one said wavelength, λ, apart.

21. (Original) A method as recited in claim 19 further comprising the step of eliminating at least one phase-related ambiguity in said set of possible signal emitter locations.

22. (Original) A method as recited in claim 21 wherein said step of eliminating at least one phase-related ambiguity uses *a prior* information.

23. (Original) A method as recited in claim 21 wherein said step of eliminating at least one phase-related ambiguity uses a maximum likelihood method algorithm.

24. (Currently Amended) A wireless system for locating a movable object positioned in a structure having structural features characterized by a feature size, and receiving information therefrom which comprises:

a signal emitter ~~for emitting a low frequency~~ coupled to said object, said emitter for broadcasting a positioning signal having a wavelength, λ, longer than said feature size, and a data signal;

at least three mutually dispersed base station sites, each said base station site for receiving said ~~low frequency position~~ positioning signal and said data signal from said signal emitter, each said base station site having a multiple access protocol filter to separate said ~~position~~ positioning signal from said data signal and a phase sensing circuit for determining phase information for each received ~~position~~ positioning signal; and

a central processing site connected in communication with each said base station site, said central processing site having a processor for using said phase information to determine the location of said signal emitter relative to each said base station site.

25. (Original) A system as recited in claim 24 wherein said multiple access protocol is code division multiple access (CDMA).

26. (Original) A system as recited in claim 24 wherein said multiple access protocol is time division multiple access (TDMA).

27. (Original) A system as recited in claim 24 wherein said multiple access protocol is frequency division multiple access (FDMA).

28. (Original) A system as recited in claim 24 wherein said data signal contains information measured by a sensor selected from a group consisting of an oxygen sensor, a carbon monoxide sensor, a temperature sensor, an air tank level sensor, a heat rate sensor, a motion sensor and a battery level sensor.